

DEPARTMENT OF HEALTH SERVICES
MEDICAL WASTE MANAGEMENT PROGRAM

P.O. BOX 942732
SACRAMENTO, CA 94234-7320
(916) 327-6904; (916) 323-9869



Alternative Medical Waste Treatment Technology
Approved by the California Department of Health Services

Effective Date: September 6, 2000

This is an information document only. The information provided relative to each of the approved alternative treatment technology processes is general information. The Department of Health Services is in no way endorsing a technology or to be held liable for the information provided. Anyone interested in the products described in this document is encouraged to contact the company directly.

Alternative Technology Approval serves only as authorization for operation as otherwise required by the Medical Waste Management Act and attendant regulations. Sections 117925 (a) and 117950 (a) require that generators operating certain technologies apply for a treatment facility permit pursuant to Chapter 7.

The following codes are placed along side each alternative technology as a guide to the status of each technology as it relates to California.

Code: A. Onsite units in Calif.

Code: B. Offsite units in Calif.

Code: C. No units in Calif.

Code: D. No permit required

Code: E. Must be permitted by the enforcement agency or DHS

Treatment Systems of General Application

Circle Medical Products, Inc. - Medical SafeTEC (A,E)

Mr. Jon Watson, General Manager
Circle Medical Products
8464 Brookville Road
Indianapolis, IN 46239

(317) 357-8080
Fax: (317) 357-8349

This system uses a hammer mill and sodium hypochlorite for grinding and disinfecting medical waste. Red bags and sharps waste are fed into the unit through the hopper. Once the waste is processed, the resulting waste is unrecognizable and is solid waste which may be disposed at a solid waste facility. This system requires a permit from the appropriate administering health or environmental health agency.

GMS Marketing Services—Sterimed

Arye Addady
GMS Marketing Services
191 Hempstead Turnpike
West Hempstead, NY 11552

(516) 483-1403
(800) Sterimed

The SteriMed infectious waste disinfecting disposal unit simultaneously shreds and mixes medical waste with a disinfecting solution composed of quarternary ammonium compounds and gluteraldehyde. By recirculating the mixture of medical waste and

disinfectant, using a positive piston pump, the device assures multiple passes of the entire load through the shredder to increase the surface exposed to the disinfectant. Treated non-liquid medical waste is then separated for disposal as municipal solid waste and the liquid fraction is sewered. SteriMed is approved for treatment of all medical waste other than wastes which must be incinerated pursuant to Sections 118220 or 118222 of the Medical Waste Management Act. This process requires a permit from the appropriate administering health or environmental health agency.

Isolyser - ORexTM Processor (A,E)

Mr. Travis W. Honeycutt
4350 International Boulevard, NW
Norcross, GA 30093

(404) 381-7566
(800) 777-7977

The ORexTM Processor treats biohazardous contaminated garments, linens, drapes and utensils made from the ORexTM polymer (polyvinyl alcohol). At 190° F for ten to 25 minutes (depending on load) the polymer is dissolved and pathogens destroyed (6 log₁₀ kill at 10 min.). The resulting mixture is then sewered. A button catcher intercepts sanitized solid objects such as buttons and surgical instruments. Achievement of sanitizing temperatures is confirmed by dissolution of the ORexTM material, which will not dissolve at lower temperatures. The processor requires a permit from the enforcement agency as an onsite treatment facility.

Kvaerner U.S. Inc. Successor to Mediclean Technology Inc., Medical Compliance Services, Inc.- Encore 2000 RWP (C,E)

Mr. David Hahn, Vice President/ Sales and Marketing
116 Roddy Avenue
South Attleboro, MA 02703-7974

(508) 399-6400

The MCS Encore 2000 RWP treatment system uses the same technology as its predecessor the Mediclean Infectious Waste Processor, IWP - 1000. MCS states that they have improved Mediclean's processor by adding a shredder upstream to shred the medical waste in the presence of ClO₂ prior to granulation of the waste. The MCS medical waste processor uses ClO₂ which is approved by the Federal EPA and the California Department of Pesticide Regulation. The capacity of the system is approximately 2,000 pounds per hour of typical input waste. The unit requires a permit from the appropriate administering health or environmental health agency.

Medivators/Disposal Science Inc. (DSI) -- Sharps Disposal System

MediVators, Inc.
2995 Lone Oak Circle, Suite 10
Eagan, MN
55121-03878

(800) 537-7324

This system employs a dry heat sterilizer and grinder for treating sharps waste. DSI reusable sharps collection devices are used. Once filled, these containers are inserted into the DSI unit, and the sterilization process is run. This results in needles, syringes, and other sharps waste being melted into what looks like a hockey puck, which can be

disposed of as solid waste. Needle fragments are encased in the "hockey puck", preventing the possibility of a puncture. This system requires a permit from the appropriate administering health or environmental health agency.

Medivators/DSI 2000 Sharps and Plastic Waste Disposal System

Essentially a larger version of the "DSI" described above, this apparatus has a capacity of approximately 15 lb. per cycle, and melts the plastic into an 18-inch-long loaf. This system requires a permit from the appropriate administering health or environmental health agency.

OBF Industries, Inc. - PremiCide Treatment System (A,D)

Mr. William Murphy, President/CEO
2719 Curtiss Street
Downers Grove, IL 60515

(630) 515-1683

PremiCide is a sanitizing encapsulant for liquid medical waste. The active ingredient is glutaraldehyde with other inert ingredients. This product is primarily marketed for suction canister use, and is available in pre-measured quantities for 0.5, 1.2 1.5, 2.0 and 3.0 liter suction canisters, and in a calibrated container which will treat 10,000 ml. (See also page 10.) In order to achieve full sporocidal activity in other than suction canister use, treated waste must be held for 48 hours before disposal as solid waste.

PEAT, Inc (formerly Plasma Arc.) (C,E)

Roy DuPree, Director of Marketing
4914 Moores Mill Road
Huntsville, AL 35811

(205) 859-3006

Plasma arc reactors generate intense heat (12,000°F) through discharge of a powerful electrical arc (artificial lighting). The thermal energy generated by ionizing gasses is transferred to the waste, where at temperatures of 2000 to 3000°F, volatile constituents are vaporized while organic matter is fused into a glassy slag. After CO₂, HCL and oxides of sulfur are scrubbed, the gas (principally N₂, H₂, and CO) is flared.

The vitreous slag, with heavy metals present sequestered within, may be landfilled or used in construction as rock substitute. This system requires a permit from the appropriate administering health or environmental agency.

PMA Services Inc. - MedClean-M (A,E)

Mr Joseph T. Militello
PMA Services, Inc.
22347 La Palma Ave. Ste. 106
Yorba Linda, CA 92887

(714) 692-8533
Fax (714) 692-5478

This portable system uses dry heat (in excess of 500° Fahrenheit) to disinfect medical waste, including needles and syringes, petri dishes, culture plates and red-bag waste. The resulting block of plastic encases sharps, is unrecognizable as medical in origin, and may be disposed of as solid waste. The unit provides a printout of each cycle showing cycle time and temperature. The unit requires a permit from the appropriate administering health or environmental agency.

Roatan Redlock System (C,E)

Ms. Suzanne Helton-Beck
1022 Santerre Drive
Grand Prairie, TX 75050

(214) 647-4033
(415) 871-6509

The Redlock sterilizer treats by pressurized steam generated inside a pressure vessel. Each sterilizer unit has the capacity to treat approximately 50 pounds per hour at the rate of 2 or 3 cycles per hour. The vessel is energized from the outside by two industrial 1.2 kW magnetron microwave generators to produce steam in a pressurized environment. Continuous monitoring determines the time of treatment, which varies dependent upon the load. Typical processing time is 20 minutes. The unit features reusable 25 gallon containers designed to fit within the pressure vessel for treatment.

Sanitec, Inc.- SANITEC HG-A-100, HG-A-250 (AB,E)

Mr. Joseph Delloiacovo, President
26 Fairfield Place
West Caldwell, NJ 07006

1-800- 551-9897

This system uses a microwave disinfection unit to treat medical waste. Two models are available; 100 kg/hr and 250 kg/hr throughput. The waste is shredded and heated sufficiently to render it noninfectious. The resulting waste is unrecognizable and may be disposed of as solid waste at a solid waste facility. Units are located in Sacramento, Oakland, and Costa Mesa, California. This system requires a permit from the appropriate administering health or environmental health agency.

Scientific Ecology Group, Inc. (SEG) - Synthetica Detoxifier Process (C,E)

Mr. Bryan A. Roy, VP, Technology Applications
P. O. Box 2530
1560 Bear Creek Road
Oak Ridge, TN, 37831-2530

(423) 481-0222
Fax:(423) 482-7206

The Synthetica Detoxifier Process is a steam detoxifier that is designed to shred medical waste to a closely controlled size, and metering these shreds into a steam-reforming screw conveyor which acts to reduce the mass and sterilize the waste. The Synthetica Detoxifier chemically reacts carbonaceous substances (organic chemicals) with high temperature steam to produce a syngas. The syngas is then catalytically oxidized to CO₂ and water. The STD system also includes exhaust treatment equipment to remove trace vapor contaminants prior to discharge and continuous monitoring equipment to assure compliance with federal, state and local regulatory levels. This system requires a permit from the appropriate administering health or environmental health agency.

Steris Corporation - EcoCycle 10 Processor (C,E)

Mr. Paul Zamecnik, President
Steris Corporation
9450 Pineneedle Drive
Mentor, OH 44060

(216) 354-2600

The Steris Corporation, EcoCycle 10 Processor, uses STERIS 20 Decontaminant, STERIS-SW Decontaminant and STERIS-WL Decontaminant. The active ingredients include Peracetic Acid and other inert ingredients. The process uses a mechanical means to treat medical waste. The waste is placed in the treatment chamber and a fixed amount of the particular decontaminant is added. The cap is secured, water is added, and the chamber contents are ground for three minutes.

Following physical destruction, the mixture is permitted to soak for seven (7) minutes, during which time the total destruction (99.9 %) of the microbial population is completed. The chamber contents are then rinsed, spin dried and drained. The resulting waste is ready for disposal as a solid waste. This system requires a permit from the appropriate administering health or environmental health agency.

Stericycle, Inc. - Electro-Thermal Deactivation (B,E)

Richard T. Cogler, COO
27161 N. Keith Drive
Lake Forest, IL 60045

(847)607-2070

This alternative treatment system uses low-frequency radio waves to disinfect medical waste. Low-frequency radio waves heat the moistened waste (~10% H₂O) sufficiently (90°C.) to kill viruses, vegetative bacteria, fungi, yeast, and most spores. This system requires a permit from the appropriate administering health or environmental agency.

Thermal Waste Technologies, Inc. Demolizer System (Heat Sterilization)
(Formerly DOCC, Inc.)**(C,E)**

Mr. Jon Bricken, President/CEO
19 Stoney Hill Road
Bethel, CT 06801

(203) 778-1139

The Demolizer System uses dry heat (350°F) to treat sharps and biohazardous waste. The processing unit is approximately the size of a microwave oven and can be plugged into any standard 110 volt, 15 amp. grounded electrical outlet. A one gallon sealed container filled with medical waste is placed in the unit. The unit will heat the waste to 350 degrees

Fahrenheit for a period of ninety (90) minutes, after which the processed waste will be allowed to cool for thirty (30) minutes until reaching a safe handling temperature. The treated waste in its integral metal container can be disposed of as solid waste. This system requires a permit from the appropriate health or environmental health agency.

Thermal Equipment Corporation--Mediclave**(B,E)**

Mr. Kenneth R. Earls
1301 W. 228th Street
Torrance, CA 90501

(310) 328-6600

MediclaveTM is a modification of conventional steam sterilization which applies high pressure (150 psi), high temperature (350°F) steam within a jacketed pressure vessel. At this elevated temperature, the treatment cycle is shortened allowing 300 lb./hour throughput in a three-foot diameter unit. At the end of the cycle, a hydraulic ram within the unit compresses the super-heated waste into an eight-inch-by-three-foot diameter disk which can be recycled or landfilled. There is one unit located in southern California, but it is not operational. This system requires a permit from the appropriate health or environmental health agency.

Thermokill, Incorporated - Heat Sterilization**(C,E)**

Mr. Michael J. Gaylor
400 Douglas Avenue, Suite C
Dunedin, FL 34698

(800) 483-1111

This treatment technology is designed to grind the waste as to be unrecognizable and sterilizes the waste by an internal temperature of 340 to 360 degrees Fahrenheit for 30 minutes. The treatment unit can treat up to 1000 pounds per hour of medical waste.

The Thermokill process involves

the use of steam for cooking the waste. However, the steam is fed into the shell side of the "thermal screw" thereby having no direct contact with the waste. The condensate from the steam is returned to the boiler feed tank and is re-used. There is no discharge of liquid to a sanitary sewer or the groundwater. This system requires a permit from the appropriate administering health or environmental health agency.

Tempico, Incorporated —Rotoclave**(C,E)**

Blake Harrison
Tempico, Inc.
P.O. Box 428
251 Hwy 21 North
Madisonville, LA 70447

(504) 845-0800

The Tempico Rotoclave[®] is a pressure-vessel steam sterilizer which features an internal rotating waste “mixer” which mixes and partially breaks up the waste, providing more efficient exposure of waste to steam and speeding treatment. Tempico offers an ancillary waste processing system which further shreds and processes the treated waste rendering it “unrecognizable” as healthcare-generated waste. Because it is an autoclave, the Rotoclave[®] may be operated either under Section 118215 (c) operating parameters, or according to operating conditions specified in its alternative technology approval. The Rotoclave is available in several models ranging in capacity from 250 pounds per hour to well over 2000 pounds per hour.

WESCO (Formerly Winfield-Condor Medical Waste Treatment System)**(C,E)**

Neal Langerman, Ph.D.
WESCO
114 Fourteenth St., Suites B&C
Ramona, CA 92065

(760) 789-6496
Fax (760) 789-5103

The Condor system incorporates a chlorine dioxide generation technology that produces a solution of sodium chlorite and citric acid to generate a concentration of chlorine dioxide, approximately 30-50 ppm. Together with the chlorine dioxide for disinfection, this system also uses mechanical shredding. Medical waste processed and disinfected by this treatment method is solid waste and may be sent to a solid waste facility. This system requires registration or a permit from the appropriate administering health or environmental health agency.

Treatment Systems Limited to Specific Applications**EARTH-SHIELD Company****(C,D)**

Joe A. Dendy, D.V.M.
304 Yampa Street
Bakersfield, CA 93307

(805) 322-0300

This process is a point of generation disposable system for sharps waste only. Proper use of the system results in the sterilization of hypodermic needles which are then encased in a solid cementitious medium. The container may then be disposed of as solid waste. Earth-Shield has been approved as a thermal treatment method in California, based on the heat generated during the encasement process. As such it is exempt from pesticide registration requirements and is available to the California

marketplace. Earth-shield continues to pursue pesticide registration by the United States Environmental Protection Agency (USEPA) and the California Department of Pesticide Regulation (DPR) as a chemical treatment.

Isolyser - Sharps Management System (SMS) **(A,D)**

Mr. Travis W. Honeycutt
4350 International Boulevard, NW
Norcross, GA 30093

(404) 381-7566

This process is a disposable system which is intended to be used on-site at the point of generation. When used properly, the containerized waste becomes encapsulated within the container and the waste may be disposed of as solid waste. Isolyser SMS may be purchased through medical and dental supply houses.

OBF Industries, Inc. - PremiCide Treatment System **(A,D)**

Mr. William Murphy, President/CEO
2719 Curtiss Street
Downers Grove, IL 60515

(630) 515-1683

PremiCide is a fast acting encapsulant for sanitization of suction canister contents. The active ingredient is glutaraldehyde with other inert ingredients. It is available in pre-measured quantities for 0.5, 1.2 1.5, 2.0 and 3.0 liter suction canisters, and in a calibrated container which will treat 10,000 ml. Treated suction canisters may be disposed immediately as solid waste. For other than suction canister use, treated waste must be held for 48 hours before disposal as solid waste. (See also page 4.)

Conditions of Alternative Technology Approval

Alternative medical waste treatment technology approval is accomplished under the authority of Chapter 8 of the Medical Waste Management Act. Approval is subject to and requires strict adherence to the operations protocol submitted in the alternative technology application.

Pertinent language in Section 118215 requires that A person generating or treating medical waste...ensure that the medical waste [be] treated..., thereby rendering it solid waste...prior to disposal. This approval, granted pursuant to subdivision (d), requires that the alternative treatment method be both of the following:

“ (A) Approval by the Department; (B) Result in the destruction of pathogenic organisms...”

A technology's compliance with subdivision (B) shall be dependent on the continuing operation of these technologies will remain subject to the outcome of any inspections as may be required by the Department.

Alternative Technology Approval serves only as authorization for operation as otherwise required by the Medical Waste Management Act and attendant regulations.

Sections 117925 (a) and 117950 (a) require that generators operating certain technologies apply for a treatment facility permit pursuant to Chapter 7.

For additional information on requirements for use of these alternative treatment technologies, please contact your local health or environmental health agency or the California Department of Health Services, Medical Waste Management Program, Sacramento office at (916) 327-6904, or by fax at (916) 323-9869.

Sincerely,

A handwritten signature in cursive script, appearing to read "Darice G. Bailey".

Darice G. Bailey, Chief
Waste Management Section
Environmental Management Branch